

CSI: DIVISION: 06 00 00—WOOD, PLASTICS AND COMPOSITES
Section: 06 12 00—Structural Panels

Product Certification System:

The ICC-ES product-certification system includes evaluating reports of tests of standard manufactured product, prepared by accredited testing laboratories and provided by the listee, to verify compliance with applicable codes and standards. The system also involves factory inspections, and assessment and surveillance of the listee's quality system.

Product: STRUCTURAL INSULATED PANELS

Structural Insulated Panels are factory-assembled, laminated sandwich panels consisting of expanded polystyrene (EPS) foam plastic core with wood-based structural-use sheathing facings.

Listee: STRUCTURAL INSULATED PANEL ASSOCIATION (SIPA)

Additional Listees:

PORTERCORP
ENERGY PANEL STRUCTURES, INC.
ENERCEPT, INC.

Evaluation: Structural Insulated Panel shear wall assemblies, for use as a lateral force resisting system in Seismic Design Categories A through F, have been evaluated based on testing in accordance with the following standard:

- ASTM E2126-05, Standard Test Methods for Cyclic (Reversed) Load Test for Shear Resistance of Vertical Elements of the Lateral Force Resisting Systems for Buildings, ASTM International.

Findings: Structural Insulated Panels have the following allowable in-plane shear load as specified in Table 2 below, based on testing in accordance with ASTM E2126. Design loads on the panels shall not exceed the allowable loads noted in Table 2. See ICC Design No. SIP-1360-01 for assembly component details.

Identification:

1. The panels must have a label containing the name and address of the sandwich panel manufacturer, the plant identifier, the product panel number, the ICC-ES listing number (ESR-1360), and when applicable, the ICC-ES listing mark.

2. The report holder's contact information is the following:

STRUCTURAL INSULATED PANEL ASSOCIATION (SIPA)
P.O. BOX 39848
FORT LAUDERDALE, FLORIDA 33339
(253) 858-7472
www.sips.org
info@sips.org

3. The additional listee's contact information is the following:

PORTERCORP
4240 NORTH 136TH AVENUE
HOLLAND, MICHIGAN 49424
(616) 888-3534

ENERGY PANEL STRUCTURES, INC.
102 EAST INDUSTRIAL PARK
GRAETTINGER, IOWA 51342
(800) 967-2130

ENERCEPT, INC.
3100 9TH AVENUE SE
WATERTOWN, SOUTH DAKOTA 57201
(605) 882-2222

Installation: Structural Insulated Panels shall be fabricated, identified and erected in accordance with this report, the approved construction documents and the applicable code.

Conditions of listing:

1. The listing report addresses only conformance with the standard noted above.
2. Approval of the product's use is the sole responsibility of the local code official.
3. The listing report applies only to the materials tested and as submitted for review by ICC-ES.
4. Where required by the authority having jurisdiction, structures using Structural Insulated Panels shall be designed by a registered design professional. Construction documents, including engineering calculations and drawings providing floor plans, window details, door details, and connector details, shall be submitted to the code official when application is made for a permit. The individual preparing such documents shall possess the necessary qualifications as required by the applicable code and the professional registration laws of the state where the construction is undertaken. Approved construction documents shall be available at all times on the jobsite during installation.
5. Connection to structure shall be designed in accordance with accepted engineering practice to transfer racking forces into the wall at the top and out of the wall at the base.
6. Design loads to be resisted by Structural Insulated Wall Panels shall be as required under the applicable building code. Loads on the panels shall not exceed the loads noted in this report.
7. Shear walls shall be sized to resist all code required wind and seismic loads without exceeding the allowable load provided in Table 2. Shear wall chords, hold-downs, and connections to transfer shear forces between the wall and surrounding structure shall be designed in accordance with accepted engineering practice. The allowable load provided in Table 2, as published, are limited to assemblies with height-to-width ratios not exceeding 2:1.
8. The shear wall configurations in Table 2 are permitted in Seismic Design Categories A, B, C, D, E and F. Such walls shall be designed using the seismic design coefficients and limitations provided in ASCE 7-10 for light-framed walls sheathed with wood structural panels rated for shear resistance (SFRS A13). These SIP panels shall use the following factors for design: Response Modification Coefficient, $R = 6.5$; System Overstrength Factor, $\Omega_o = 3.0$; Deflection Amplification Factor, $C_d = 4.0$.
9. Adhesives shall not be applied at wood-to-wood or spline-to-facing interfaces in shear walls in Seismic Design Categories D, E and F, sealants may be applied in these locations. Adhesives and sealants may be applied to wood-to-foam or facing-to-foam interfaces. Flexible SIP tape may be applied over panel joints.
10. The Structural Insulated Panels are manufactured at facilities noted in Table 1, under a quality control program with inspections by ICC-ES.

TABLE 1—MANUFACTURING LOCATIONS

MANUFACTURING PLANTS	
PorterCorp 4240 North 136 th Avenue Holland, Michigan 49424	Energy Panel Structures, Inc. 102 East Industrial Park Graettinger, Iowa 51342
Enercept, Inc. 3100 9 th Avenue SE Watertown, South Dakota 57201	---

TABLE 2 (DESIGN SIP-1360-01)—ALLOWABLE IN-PLANE SHEAR STRENGTH (POUNDS PER FOOT) FOR SIP SHEAR WALLS (SEISMIC LOADS IN SEISMIC DESIGN CATEGORIES A, B, C, D, E AND F)^{1,2}

Spline Type ^{4,5}	Framing Minimum SG ³	Minimum Facing Connections ²			Shear Strength (plf)
		Chord ²	Plate ²	Spline ⁴	
Block	0.50	0.131-inch x 2 ¹ / ₂ -inch nails, 3-inch on center ³ / ₈ -inch edge distance	0.131-inch x 2 ¹ / ₂ -inch nails, 3-inch on center ³ / ₈ -inch edge distance	(²³ / ₃₂ -inch thick, 3-inch wide spline) 0.131-inch x 2- ¹ / ₂ -inch nails, 3-inch on center ³ / ₈ -inch edge distance	900

For **SI**: 1 inch = 24.4 mm; 1 plf = 14.6 N/m

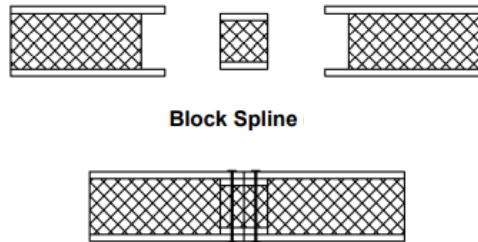
¹Allowable seismic design coefficients are provided in Item 8 of the Conditions of listing section.

²Chords, hold-downs and connections to other structural elements must be designed by a registered design professional in accordance with accepted engineering practice.

³Required connections must be made on each side of the panel. Dimensional or engineered lumber shall have an equivalent specific gravity not less than specified.

⁴Spline type at interior panel-to-panel joints only. Solid chord members are required at each end of each shear wall segment. See Figure 1 for details.

⁵The maximum assembly height-to-width ratio shall be 2:1 when used in Seismic Design Categories A, B and C. The maximum assembly height-to-width ratio shall be 1:1 when used in Seismic Design Categories D, E and F.



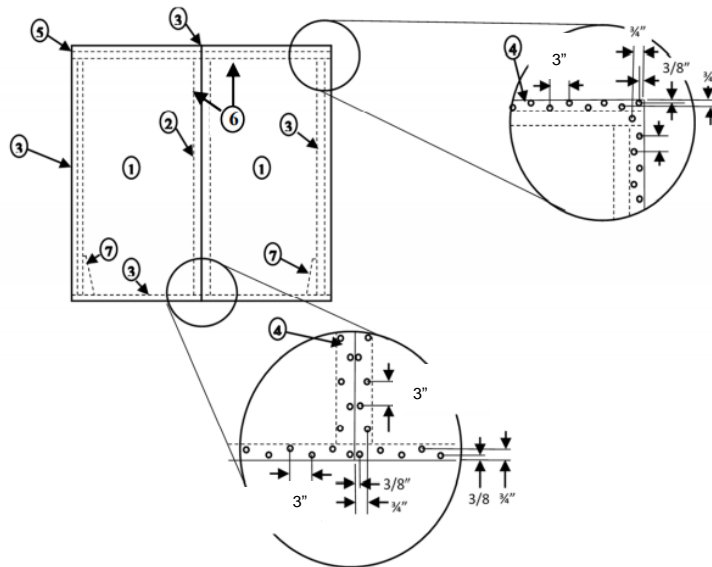
Block Spline

FIGURE 1—SIP SPLINE TYPE

Applicant: STRUCTURAL INSULATED PANEL ASSOCIATION (SIPA)

Product: STRUCTURAL INSULATED PANELS

Standards: ASTM E2126



STRUCTURAL INSULATED PANELS FOR USE IN SEISMIC DESIGN CATEGORIES A, B, C, D, E, AND F

COMPONENTS OF CONSTRUCTION:

1. **Structural Insulated Panels:** *Structural Insulated Panels* consisting of minimum nominal 5¹/₂-inch-thick (140 mm) expanded polystyrene (EPS) core laminated between two sheets of minimum 7/16-inch-thick (11.1 mm) oriented strand board (OSB). SIP Panels shall be labeled in accordance with [ESR-4689](#).
2. **Splines:** *Structural Insulated Panels* for use in seismic construction are interconnected with insulated OSB (Block) splines, 3 inches wide (76.2 mm) and overall thickness equal to the core thickness of the SIP, along the full length of the spline connections at maximum 48 inches (1219 mm) on center. The spline is composed of 7/16-inch-thick (11.1 mm) OSB and an EPS core.
3. **Chords and Top and Bottom Plates:** *Structural Insulated Panels* for use in seismic construction shall use #2 Douglas Fir Double 2x Top Plates and Chords with a single 2x Bottom Plate.
4. **8d Nails - 0.131-inch x 2-1/2-inches:** Nails spaced 3 inches (76 mm) on center around the panel perimeter with 3/8-inch (9.5 mm) edge distance and 3 inches (76 mm) on center on both sides of the spline connection.
5. **16d Nails - 0.162-inch x 3-inches:** (2) fasteners used to end nail the top and bottom plates at each chord.
6. **10d Nails - 0.148-inch x 3-inches:** Nails used to stitch double plates, #2 Douglas Fir Double 2x lumber and end posts, spaced two rows 5 inches (127 mm) on center.
7. **Hold-downs:** Designed in accordance with accepted engineering practice to resist design chord forces.